

### FOLDABLE CORDLESS HAIR STYLER

The invention relates generally to cordless hair stylers and more specifically to a foldable cordless hair styler which is enclosed in a soft protective fabric-like body and which is designed for travel and may be unwrapped, unfolded and rewrapped to assume a usable condition wherein a user may style his or her hair.

5 Previously proposed foldable/collapsible cordless electric hair curling appliances have been proposed wherein the heating element (e.g. wand) and the hair clamp member are pivotally supported on a handle in which the wand is stored during non-use. However, these arrangement are constructed of rigid bodies/components whose configurations are not variable, and which can resist being disposed in very limited and odd shaped spaces which  
10 is inevitably left in over-filled bags/suitcases when a person is about to embark on a trip, for example. Further, due to the rigid nature of the housing in which the wand/batteries (for example) are housed, damage can occur if the bag/suitcases in which the styler is carried is dropped or subject to excessive force by surrounding luggage items.

The present invention is directed to a foldable cordless hair styler wherein the body of the  
15 device is formed of a soft pliable protective member which can be wrapped and unwrapped, in a manner similar to a padded blanket, and thus about the accessory (e.g. wand/clamp) and batteries. This soft body allows for a limited amount of displacement between the just mentioned elements as well as eliminating the rigid handle element which are used in the prior art hair styler arrangements. The soft, flexible housing member also  
20 allows for unwrapping of the housing, pivoting of an attachment to an operative position, and the re-wrapping of the body in which pulls the battery pack or packs into position against an elongate support member on the end of which the attachment is pivotally supported. The battery pack or packs, in which the batteries are stored, are therefore moved into the position previously occupied by the attachment and, with the elongate  
25 member, form a handle arrangement having a thickness suitable for the user to hold is formed while the device is in use.

More specifically, the present invention relates a cordless hair styler comprising: a flexible body (102) comprising a flat flexible sheet of fabric which can be wrapped and unwrapped about rigid members (110, 112, 116) of the cordless hair styler to hold the rigid  
30 members in a selected compact storage and handy operative positions, respectively.

In the disclosed embodiments, the rigid members comprise an attachment (112); an elongate member (110) on which the attachment is pivotally supported; and an elongate battery pack (116).

Further, the above-mentioned flexible body (102) is formed with pockets (104, 106, 108) in which the elongate member (110) and one or more battery packs (116) are respectively disposed and held in an essentially parallel relationship. This flexible body includes a flexible extension portion (102A) which extends from one of the pockets and which is wrappable about the elongate member (110) and the battery packs (116) so that one or more pockets (106, 108) in which one or more battery packs (116) are disposed, and which are hinged to the pocket in which the elongate member is disposed by a portion or portions (102C) of the flexible body (102), are moved into the space previously occupied by the attachment. With this, the elongate member and battery pack(s) are held together and comprise a handle member which can be grasped during application of the attachment for hair styling.

A further aspect of the invention resides in a method of housing a hair styler comprising: disposing an elongate member (110) on which an hair styling attachment (112) is pivotally mounted, in one of a plurality of pockets (104, 106, 108) formed in a flexible body (102); disposing a battery pack (116) in another of the pockets; folding the hair styling attachment so that it assumes a storage position parallel to the elongate member; wrapping the flexible body around the pockets so as to pull the elongate member (110), the hair styling member (112) and the battery pack (116) into snug proximity with respect to each other; and fastening the flexible body (102) to itself using a fastener (102B) to maintain the flexible body wrapped about the elongate member (110), the hair styling member (112) and the battery pack (116).

This method also comprises releasing the fastener (102B); unwrapping the flexible body (102) to uncover the attachment; unfolding the attachment (112) so that it assumes a predetermined operative position with respect to the elongate body (110); rewrapping the flexible body about the elongate member (110) and the battery pack (116) so as to pull the battery pack (116) into close proximity of the elongate member and to form a handle which can be used during use of the attachment; and refastening the fastener (102B).

The various aspects and advantages of the exemplary embodiments will become more clearly appreciated as a detailed description of the drawings is given with reference to the appended drawings wherein:

Fig. 1 is a underside plan view of a first embodiment of the invention in wherein  
5 the soft extension wrapping member has been unwrapped and the flexible body laid out such that the attachment (wand) is uncovered ready to be pivoted to an operative position;

Fig. 2 is a perspective view showing the attachment partially pivoted from the storage position and showing the space in which it was received/stored;

Fig. 3 is a perspective view showing the attachment fully extended to an operative  
10 position and with the soft extension wrapping member re-wrapped to tighten the two battery packs against the elongate member on which the wand is pivotally supported;

Fig. 4 is a perspective view showing the attachment folded back into its storage position and with the soft extension wrapping member wound around and fastened in place to render the arrangement ready for packing/travel;

15 Fig. 5 is a top plan view showing a second embodiment of the invention which has a differently shaped soft extension wrapping member and fastening arrangement.

Fig. 6 is a perspective view of the second embodiment showing the soft extension wrapping member opened to expose the attachment which is still folded in its storage position; and

20 Fig. 7 is a perspective view of the second embodiment showing the attachment fully extended and the space between the pontoon-like battery pack pockets in which it was disposed during storage.

The first exemplary embodiment of the invention 100 comprises a flexible body 102 formed of fabric (woven or non-woven) or similar type of material and which, in this  
25 embodiment, resembles a quilt. The flexible body 102 is formed of multi layers of material which are sewn or connected (e.g. heat staked together) to form three elongate pockets 104, 106, 108. A layer of impact absorbing padding (not shown) is suitably disposed between the layers and held in place the sewing/connection which produces the quilt-like appearance.

30 The center pocket 104 is arranged to receive an elongate member 110 on which an attachment 112 (hereinafter referred to as a wand) is pivotally mounted by way of a pivot arrangement. The pivot arrangement allows the wand 112 to be folded back beside the

elongate member 110 during storage, and to be pivoted out to assume an operatively position wherein the wand 112 and the elongate member 110 are essentially aligned with one another. The elongate member 110 forms a part of the handle when the cordless hair styler is in use. In this embodiment, two pockets, viz., pocket 106, 108, which are formed on either side of the center pocket 104 in which the elongate member 106 is disposed, have battery packs disposed therein.

The flexible body 102 further includes a flexible extension portion 102A which resembles a flap or tie portion. This flap-like flexible extension portion 102A is arranged to be wrapped about the rigid elements of the cordless hair styler and to be secured in its wrapped condition by a fastening arrangement 102B. This embodiment the fastening arrangement 102B comprise a so called Velcro® type hook and loop fastener. This type of fastener is free of hard elements which may generate localized pressure on the rigid elements of the cordless hair styler and thus continues the theme of soft enveloping protective wrapping which is provided by the flexible body 102.

The battery packs 116 which are disposed in the pockets 106, 108 are arranged to have hinged caps (no numerals) to allow dry cells or rechargeable cells to be inserted therein. A spring or the like (not shown) is disposed at the bottom of the elongate tubular members which define the pack bodies. This spring acts as one of the two electrodes that are necessary in order to conduct the direct current from the cells which are slid into the battery packs, to the heating element provided in the wand. Although not shown, a flexible connectors are disposed through the narrow hinge like portion 102C of the flexible body which separates the battery pack pockets 106, 108 and the center pocket 104, and connects the battery pack electrodes via a power supply switch (not shown per se) which is disposed with the elongate member 110, to the heating element in the wand 112.

In the first embodiment the switch is operated by a lever 120. In the second embodiment, the switch is operated by a button 220 formed on the elongate member. Inasmuch as this type of wiring and switch connection are well within the purview of those skilled in the art to which this invention pertains, no further disclosure will be given for brevity.

In the case that the lever 120 is used to control the power supply switch, the lever is 120 stored in a position wherein it lies flat against the wand 112 in the manner shown in Fig. 1. After the wand 112 is deployed, the lever 120 is pivoted through about 120-140° to

the position illustrated in Fig. 3. Depressing the lever 120 down from this position toward the elongate member 110 moves the tongue-like angled member formed at the end of the lever 120 (see Fig. 4) in a manner which activates the power supply switch.

If desired the hinge can be provided with a click stop to prevent the wand 112 from  
5 folding back on the operators hand during use.

When it is desired to use the cordless hair styler, all that is necessary is for the fastener to be released and for the flexible body 102 to be unwrapped to assume the state shown in Fig. 1 for example. After this, the wand 112 can be pivoted all the way from its storage position (see Fig. 2 showing the wand 112 partially pivoted from its storage  
10 position) to its operative position wherein it may clicklock in position. After this, the soft pliable member 102A can be wrapped around the battery packs 116 in a manner which draws them in under the elongate member 110 and the fastener 102B is fastened to hold the battery packs in position under the elongate member in the manner illustrated in Fig. 3.

When the use of the cordless hair styler is no longer required, the fastener 102B can  
15 be unfastened, the flexible body 102 unrolled and the wand 112 folded back against the elongate member 110 to assume a position between the battery packs 116. The flexible body 102 is then rolled up and the flexible extension portion 102A wrapped around the flexible body 102 and rigid elements (viz., the elongate member 110, the wand 112 and the battery packs 116) and the fastener 102B fastened. This results in the arrangement  
20 depicted in Fig. 4.

A socket for a charger connection is provided in the end of the elongate member 110 and concealed by a rectangular cover in the manner illustrated in Fig 7. This allows for the recharging of rechargeable batteries in the battery packs 116 and/or the operation of the hair styler using an external source of power such as a cigarette lighter socket in an  
25 automotive vehicle.

While the invention has been disclosed with reference to a limited number of embodiments, the various modifications and variations which can be made without departing from the scope of the invention, which is limited only by the appended claims, will be self-evident to those skilled in the art of container construction and shipping. For example, embodiments are possible wherein there is only one battery pack or wherein the flexible body is formed of patterned/textured material having grip improving shock absorbing bumps/projections formed therein to improve the protection of the attachment

/accessory and the battery packs against impact damage or the like. Of course, any electrically operated device could be used in place of the attachment which has been described and illustrated in this disclosure.